The contribution of market movements, asset allocation, and active management to Islamic equity funds' performance

Abstract: What is the basis of the performance of Islamic equity funds (IEFs)? Is it market movements, asset allocation policy, or active portfolio management? Our study is the first to address this question in the context of Islamic funds. We use a database consisting of 281 IEFs for the period 2007-2016, and we test the role of each factor in explaining their returns. We find that market movements dominate the other components, explaining nearly 50% of the monthly return variability, and that asset allocation policy and active management together explain the other half of IEF returns.

Keywords: active management, asset allocation, Islamic equity funds, performance attribution

1. Introduction

Islamic funds have been developed in order to satisfy the desire of a portion of investors to allocate their capital in accordance with their religious beliefs. Because charging an interest rate (*riba*) is prohibited in Islam and investment in stocks does not imply the receipt of interest, managers of Islamic funds invest mainly in firm equity, i.e., stocks.[1] These stocks must comply with Islamic law, i.e., they cannot be involved in certain industries (e.g., alcohol, tobacco, gambling, pork production) and must meet several financial criteria (Aloui et al., 2016). Among these financial criteria, the level of debt, cash and interest-bearing funds, and receivables may not exceed certain thresholds (Peillex and Ureche-Rangau, 2013). In addition, several financial transactions—such as short selling, margin trading, and, more generally, excessive speculation (*qimar* or *maysir*)—are also prohibited. The sharia compliance of the investment fund's activity is certified by a sharia board.

The goal of our study is to analyze the basis of the performance of Islamic equity funds (IEFs). Is it market movements, asset allocation policy (the choice of the Islamic benchmark of the IEF), or active portfolio management (active bets around this Islamic benchmark)? This is an important issue for several reasons.

First, the rapid and the large expansion of Islamic mutual funds in the past decade argues for more research on this financial industry. According to the Islamic Financial Services Board (2016), the Islamic mutual fund industry grew from USD28.2 billion in 2004 to USD66.4 billion at the end of 2016 in terms of assets under management. Moreover, the number of Islamic mutual funds also grew, from 285 funds in 2004 to 1,042 funds in 2016.

[1] According to the Islamic Financial Services Board (2016), sharia-compliant stocks constitute 36% of the assets of Islamic funds, money market instruments 35%, commodities 10%, *sukuk* 7%, and real estate 6%, and mixed allocations account for only 5%.

Second, decomposing Islamic fund performance into the three traditional sources of performance (market movements, asset allocation policy, and active portfolio management) allows us to extend our financial knowledge in this field, which remains limited. Indeed, the previous studies on Islamic funds have mainly investigated their comparative financial performance without understanding the source of the variability in their financial performance. Among these empirical studies, Hayat and Kraeussl (2011) find that IEFs underperform both their Islamic and conventional equity benchmarks. In the same vein, while Nainggolan et al. (2016) show that IEFs underperform conventional funds by an average of 40 basis points per month, Abdelsalam et al. (2014) find that IEFs also underperform their socially responsible counterparts. Hence, the literature concludes that when they invest in IEFs Islamic investors make financial sacrifices for the sake of their religious beliefs.

Third, although many studies have already decomposed the performance of conventional funds (Aglietta et al., 2012; Xiong et al., 2010) and socially responsible funds (Brière et al., 2017; Henke, 2016), this issue was never addressed in the context of Islamic funds. Yet, because of the specific constraints on Islamic fund management, the relative importance of the three components of fund performance could be different for Islamic funds than for conventional funds. First, because IEF managers operate in a much smaller stock universe, the portion of IEF performance explained by market movements should be smaller. In fact, the Islamic screening process leads to the exclusion of 65% to 90% of stocks (Peillex and Ureche-Rangau, 2013); the leverage ratio screen results in the most exclusions. Therefore, IEFs are less diversified (Abu-Alkheil et al., 2017) and more oriented toward "defensive" sectors (Desbrières et al., 2017) and have less leveraged firms (Hayat and Hassan, 2017); thus they are less exposed to market returns than conventional funds. Second, the distribution between the asset allocation policy component (passive management) and the portion under the active management tends to be different for Islamic funds. On the one hand, because excessive

speculation is prohibited, Islamic fund managers cannot invest in derivatives, short sell, use margin trading, or rebalance portfolios very often. Consequently, management of Islamic funds can be essentially passive; portfolio managers tend to track the financial performance of sharia-compliant indices. On the other hand, despite these restrictions, active management remains open to Islamic fund managers. Indeed, they can over-invest (under-invest) in specific sharia-compliant stocks, for instance, by stock picking or using top-down strategies in order to outperform their Islamic benchmark index.

The goal of our paper is to answer an important question with regard to Islamic mutual funds: how much of the variability in returns over time is explained by, respectively, market movements, asset allocation policy, and active portfolio management? To do this, we apply the model developed by Xiong et al. (2010), decomposing IEF returns into three components: (1) market returns, (2) asset allocation policy returns in excess of market returns, and (3) returns from active portfolio management. We use a unique database of 281 IEFs for the period 2007-2016 and assess the contribution of each component in explaining their returns.

The remainder of the paper is structured as follows. Section 2 presents a brief literature review, focusing on Islamic fund performance, and decomposition of fund return variability. Section 3 introduces the data and the methodology. Section 4 presents the empirical results. Section 5 concludes.

2. Literature review

2.1. Islamic fund performance

The relative youth of the Islamic investment industry explains some of the difficulty in theoretically grounding empirical studies that focus on the performance of this type of investment. However, in line with studies that compare socially responsible investment and

conventional investment, several theoretical arguments point to underperformance when investment is constrained. According to modern portfolio theory (Markowitz, 1952), the choice of an optimal efficient portfolio is based on maximization of investors' utility function. Investors are concerned exclusively with the "risk-return" behavior of their portfolio, which can be optimized through diversification. In this context, the use of negative constraints, or screens, shrinks the investment opportunities available and thus reduces the diversification capacity of sharia-compliant portfolios. This may produce, *ex post*, a less optimal efficiency frontier. In the same vein, the argument of lower diversification potential for sharia-compliant portfolios may also be justified by the prohibition on *riba* (payment of interest). Indeed, because of this principle, Islamic fund managers cannot include conventional money market instruments or bonds in their portfolios. Additionally, checking and validating the sharia compliance (or not) of the assets by the sharia board generates monitoring costs (Nainggolan et al., 2016). Moreover, the exclusion of stocks involved in controversial industries from Islamic funds may reduce their relative financial performance. According to a growing literature, "sin" stocks, such as alcohol, gambling, and tobacco stocks, outperform industry-comparable stocks (Hong and Kacperczyk, 2009). Finally, because this industry is young, Islamic fund managers could be less experienced and thus less skilled, resulting in lower financial performance. Previous research shows that stock-picking abilities increase with the experience of fund managers (Mikhail et al., 1997).

By contrast, several arguments suggest that the lower degree of diversification displayed by sharia-compliant portfolios could be offset by more prudential risk management. First, the prohibition on paying interest leads managers to exclude highly leveraged firms from Islamic funds, thus helping to mitigate bankruptcy risk. For instance, sharia boards had excluded firms such as Enron, WorldCom, Tyco, or Global Crossing because of their excessive indebtedness, even before they experienced scandals. In addition, having less debt may reduce agency costs

from conflicts between shareholders and debtholders (Jensen and Meckling, 1976). Finally, regardless of Islamic screens, the outperformance of Islamic portfolios could be the temporary result of a mechanical shift in financial flows from stocks that are not sharia compliant to sharia-compliant stocks. Although the share of Islamic investment in global finance is still limited, investors could anticipate an increase in demand for these sharia-compliant securities, at least in Muslim countries. This could lower the cost of capital for sharia-compliant companies at least in the short term.

Empirically, studies that have measured the financial performance of Islamic funds are quite limited. They are much more likely to analyze the financial performance of Islamic indices (e.g., Girard and Hassan, 2008; Jawadi et al., 2014; Naifar, 2016; Walkshäusl and Lobe, 2012). However, these studies do not measure the "real" performance of Islamic investment because they do not take into account the skills effects of fund managers on the performance of Islamic investment.

Nassir et al. (1997) were among the first to study the financial performance of Islamic funds, using a sample of 31 mainly Islamic funds in Malaysia between 1990 and 1995. They find that these funds outperform market returns despite the low market-timing ability of their managers. However, Islamic fund managers appear to possess superior selection ability in picking up well-performing stocks.

More recently, Hayat and Kraeussl (2011) examined the risk-adjusted returns of 145 IEFs between 2000 and 2009. Contrary to the findings of Nassir et al. (1997), they show that IEFs underperform both their Islamic and conventional equity benchmarks. However, they confirm that Islamic fund managers are bad market timers. They explain this result by the inexperience of IEF managers due to the young age of this market. The major implication of this study is that IEF managers track the performance of their Islamic benchmarks instead of implementing active management strategies in order to beat the market.

Nainggolan et al. (2016) study this question using a larger sample of IEFs (387 IEFs between 1980 and 2010) and comparing them with conventional funds. They find that IEFs underperform conventional funds by an average of 40 basis points per month. However, they show that IEFs outperformed conventional funds by an average of 50–90 basis points per month during the subprime crisis. This result can be explained by the fact that IEF managers exclude financial companies and highly leveraged firms, both of which suffered more than other companies during the recent financial crisis.

Finally, Abdelsalam et al. (2014) suggest comparing the performance of 138 Islamic funds with that of 636 socially responsible funds over the period 2001-2011. They show that, despite important disparities among regions, Islamic funds exhibit lower risk-adjusted returns on average. Hence, the literature focusing on Islamic fund performance reveals that Islamic investors have to make financial sacrifices on account of their religious beliefs. Interestingly, at the same time, many empirical studies find no significant differences in performance between Islamic indices and their conventional benchmarks (Girard and Hassan, 2008; Jawadi et al., 2014; Walkshäusl and Lobe, 2012). Because the difference between IEFs and Islamic indices in terms of performance comes from active management, it is interesting to assess the relative contribution of active management to IEF return variations.

2.2. Decomposition of fund return variability

Much of the literature has analyzed the source of variations in fund returns. The first studies in this area highlight the crucial role played by asset allocation policy in explaining total fund returns (Brinson et al., 1986, 1991). They perform time-series regressions to explain total fund returns using combinations of indices that are supposed to reflect returns from the asset allocation policy of each fund. They find that asset allocation policy explains approximately

90% of the fund return variations. Because market movements are indirectly included in policy allocation returns, one of the inherent weaknesses of these studies is that they overestimate the contribution of the strategic asset allocation policy (Ibbotson and Kaplan 2000; Vardharaj and Fabozzi, 2007).

In order to overcome this difficulty, Xiong et al. (2010) propose relativizing the contribution of asset allocation policy by rehabilitating the role of market movements and active management in the explanation of the total fund returns. They develop a simple methodology in which three univariate regressions in time-series make it possible to assess the relative portion of fund performance explained by market movements, asset allocation policy, and active management, respectively. They apply their model to study the returns of 4,641 US equity funds, 587 balanced funds, and 400 international equity funds over the period 1999-2009. The results show that (1) market movements explain 74-93% of fund return variations; (2) asset allocation policy matters for 18-20%; and (3) active management accounts for 10-26%.

This method developed by Xiong et al. (2010) is at the root of much empirical research. For instance, Aglietta et al. (2012) replicate the work of Xiong et al. (2010) in the context of 143 US pension funds between 1990 and 2008. They also find that market movements dominate the other two components. However, they observe that the results depend significantly on the asset class and the method used to measure market movements. In the same vein, Brière et al. (2017) decompose the returns of 284 socially responsible funds. Market movements capture between 54% and 87% of the return variability of socially responsible funds while conventional asset allocation and active management account for 6-18% and 8-17% respectively. Finally, Henke (2016) performs his performance-attribution analysis on a sample of 103 socially responsible bond funds. Market movements are responsible for 35-46% of performance, asset

allocation policy for 11-29%, and active management for 22-31%. Our study aims to extend this strand of the literature by decomposing IEF returns.

3. Data and methodology

3.1. Data

The initial dataset, from Bloomberg, covers the total monthly returns (net of fees) of 1,165 active and inactive Islamic mutual funds investing in a variety of asset types and geographic areas. We exclude Islamic mutual funds that invest in *sukuk* (a form of sharia-compliant bond), commodities, real estate, and Islamic balanced funds because of the absence of specific Islamic benchmarks that can be used as proxies for asset allocation policy. We retain only IEFs for which: (1) information about the Islamic strategic benchmark is specified; (2) the required data to measure the Islamic strategic benchmark returns are available; (3) a track record of at least five years exists (Vardharaj and Fabozzi, 2007). The final sample consists of 281 IEFs from September 2007 to November 2016 that invest in 23 different geographic areas.

Table 1 lists the number of IEFs by region and the strategic benchmarks that determine their asset allocation policies: 38% of IEFs (108) invest in Asia, 31% (86) invest in Middle East North Africa (MENA), 20% (57) invest globally, 7% (21) have a preference for the BRICS (Brazil, Russia, India, China, and South Africa), 5 invest in the United States, and 4 invest in Europe. For each IEF, we attribute an Islamic index, which represents, as precisely as possible, the asset allocation policy declared by the fund manager. Except for IEFs investing in Saudi Arabia,[2] we retained regional Islamic indices provided by the MSCI, which are commonly used in the field (e.g., Walkshäusl and Lobe, 2012).

[2] As the prices for the MSCI Saudi Arabia Islamic Index are available only since 2009, we chose the S&P Saudi Arabia Shariah Index as a strategic benchmark for IEFs investing in Saudi Arabia.

[Insert Table 1 here]

3.2. Methodology

According to Aglietta et al. (2012) and Xiong et al. (2010), total returns on a fund can be divided into three components: (1) market returns, (2) returns from the asset allocation policy in excess of market returns, and (3) returns from active portfolio management:

$$R_{it} = M_t + (P_{it} - M_t) + (R_{it} - P_{it}) \quad (1)$$

where the dependent variable R_{it} is the monthly return (net of fees) on an IEF *i*, M_t is the market return, and P_{it} is the return from the Islamic allocation policy on an IEF *i*. Before explaining how we measure the relative contribution of each of the three components, it is necessary to explain each notation in greater detail.

We use two different definitions of market movements. First, following Aglietta et al. (2012), Brière et al. (2017), and Xiong et al. (2010), we measure market returns as the equally weighted average returns on all the IEFs in our sample. Second, in line with Aglietta et al. (2012), Brière et al. (2017), and Henke et al. (2016), we also consider the average return on conventional indices. More specifically, we use the average return on six conventional regional indices weighted by the number of IEFs per region, i.e., the MSCI World Index (20%), MSCI USA Index (2%), MSCI Europe Index (2%), MSCI BRICS Index (7%), MSCI Asia Index (38%), and MSCI MENA (Middle East and North Africa) Index (31%). This alternative measure of market movements allows us to check the robustness of our results.

The Islamic allocation policy returns on each IEF are defined by the returns on an Islamic index. Based on the geographical focus declared by each IEF, we attribute one Islamic benchmark for each IEF. These Islamic benchmarks are presented in Table 1.

To assess the relative contribution of each of the three sources of performance in the variability of IEF returns, in line with Aglietta et al. (2012) and Xiong et al. (2010), we perform three separate univariate time-series regressions. We run the three separate regressions including a constant—R_{it} vs. M_t; R_{it} vs. (P_{it} - M_t), and R_{it} vs. (R_{it} - P_{it})—and we generate R^2 values for each individual component and for each IEF. The returns on each IEF are decomposed as follows:

$$R_{it} = \alpha + \beta_{iM} M_t + \beta_{iP} (P_{it} - M_t) + \beta_{iS} (R_{it} - P_{it}) + \varepsilon_{it} \qquad (2)$$

where β_{iM}, β_{iP}, β_{iS} are the estimated coefficients of each univariate regression, and ε_{it} is the residual term.

According to Aglietta et al. (2012) and Xiong et al. (2010), all three R^2 plus an additional balancing term called an "interaction effect" ($R^2_{i\varepsilon}$) equal 100%. In other words, the proportion of variance in a fund's returns can be fully explained by market movements, asset allocation policy, active management, and an interaction effect between these factors. For each IEF *i* we thus obtain:

$$R^2_{iM} + R^2_{iP} + R^2_{iS} + R^2_{i\varepsilon} = 1 \qquad (3)$$

where R^2_{iM}, R^2_{iP}, and R^2_{iS} are R^2 values of the three univariate regressions, and $R^2_{i\varepsilon}$ is the interaction effect. This last item is the residual of the other three R^2 values and 100%—the percentage of total variance for each IEF that is explained by interaction between market movements, asset allocation policy, and active management.

4. Empirical results

4.1. Main findings

Table 2 lists average R^2s for each of the three sources of IEF performance (market movements, asset allocation policy, and active management). Panel A shows the results in which market returns are measured by the average returns on all IEFs. Panel B is a robustness check in which market returns are measured by the average returns on conventional indices weighted by the number of IEFs per region. Figure 1 summarizes the portion of conventional fund performance (Xiong et al., 2010), socially responsible fund performance (Brière et al., 2017), and IEF performance that is explained by market movements, asset allocation policy, and active management respectively. In all three studies, the funds used are international, and the identified market returns are the equally weighted returns of the funds in the sample.

[Insert Table 2 here]

[Insert Figure 1 here]

On average, the market movement portion accounts for about half the IEF return variations (49% of the return variations come from the market in Panel A) and dominates the contribution of the asset allocation policy and the active management components (28% and 16% respectively in Panel A). Together, asset allocation policy and active management explain on average the other half of IEF returns. The domination of the market movement contribution is consistent with the results of Xiong et al. (2010) in the conventional funds context and Brière et al. (2017) in the socially responsible funds context. However, this domination is less important for IEFs. Indeed, while for IEFs market movements are responsible for 49% in terms of R^2, conventional funds and socially responsible funds account for 74% and 68%, respectively. This result can be explained by the specific composition of IEFs, which leads them to deviate from market movement returns more than conventional funds. Indeed, because of the constraints imposed by sharia scholars, IEFs are less diversified than conventional funds (Abu-

Alkheil et al., 2017). Additionally, because of the Islamic leverage constraint, IEFs are more focused on less leveraged firms (Hayat and Hassan, 2017). Finally, they are characterized by higher exposure to "defensive" sectors and by their very low exposure to the financial industry (Desbrières et al., 2017). This allows them to under-react to bearish and bullish market movements.

The results by region show different conclusions depending on the geographical focus. Two groups seem to be distinguished: IEFs that invest in the most developed markets (the world, the US, and Europe) and IEFs that invest predominantly in emerging countries (BRICS, Asia, MENA). In the first group, the market component exceeds 50% in terms of R^2 (50% for the world, 58% for the US, and 59% for Europe). Asset allocation policy is responsible for between 12% and 16%, and the active management accounts for more than 21% (21% for the world, 37% for the US, and 33% for Europe). We can explain the importance of the market component for these "Western IEFs" by their high exposure to domestic stocks (Hoepner et al., 2011) and its implied level of integration. Specifically, the level of development and integration of a stock market affect the risk premium of the assets that make up the funds (Bekaert and Harvey, 2000; Levine and Zervos, 1998). These researchers posit that, in very integrated markets, the risk premium differences between domestic (defensive) and international (offensive) stocks are less important. This implies that, in very integrated markets, domestic stocks are more integrated than those in more segmented markets, which explain why, in the US, Europe, and world markets, Islamic portfolios are more sensitive to the market component. The predominance of active management with regard to asset allocation policy for these "Western" IEFs is consistent with Xiong et al. (2010), who find that whereas allocation policy accounts for 19% of the returns on conventional funds, active management accounts for 26%. This result can be explained by the difficulty, in very integrated markets, of beating the market by simply adopting a passive Islamic asset allocation strategy because, as explained above, the

universe of sharia-compliant stocks in those developed markets is larger and more integrated. The larger the universe, the higher the likelihood of implementing active portfolio strategies by picking Islamic stocks. For the second group of IEFs, market movements' contribution to return volatility is smaller (47% in the BRICS, 51% in Asia, and 47% in MENA), and interestingly, the average contribution of asset allocation policy is around twice that of active management. Indeed, while the asset allocation policy component's contribution is 30%, 18%, and 49% in terms of R^2 for IEFs that invest in BRICS, Asia, and MENA, respectively, average R^2 for active management is 14%, 8%, and 22%, respectively. Because IEFs that invest in a particular country, such as Egypt, Indonesia, Kuwait, Malaysia, Morocco, Pakistan, Qatar, Russia, Saudi Arabia, South Africa, or Thailand, have a smaller investment universe, it is not surprising that active management makes a smaller contribution to the second group of IEFs. Indeed, after they choose their benchmark, which in their case is quite low, they have very little room for active management.

Most of the findings appear to be robust to the application of an alternative definition of market returns (Panel B). Specifically, except in the MENA region, market movements still explain the biggest portion of IEF return volatility. Moreover, because market returns have no impact on the active management component (see Equation 2), the R^2s for active management are identical. For IEFs that invest in the most developed markets, the contribution from the asset allocation policy is still smaller than the contribution from active management. However, for IEFs that invest in the BRICS, Asia, or MENA, market movements and Islamic allocation policy have less importance. The results can be explained by the fact that this measure of market returns does not accurately align with the large number of IEFs investing in specific countries, such as Indonesia, Malaysia, or Saudi Arabia.

4.2. The persistence of results over time

Table 3 presents the results of the decomposition of IEF return variations over three subperiods: September 2007-December 2009, January 2010-April 2013, and May 2013-November 2016. The first subperiod allows us to investigate how the financial crisis affected average R^2s for each of the three sources of IEF performance. Determining the period of the financial crisis is somewhat arbitrary because many events influence this choice. Following Chang and Cheng (2016) and Frenkel et al. (2011), we consider that the crisis period starts in August 2007 and ends in December 2009. The following two subperiods allow us to provide the results before the financial crisis and to test their persistence over time. Three major findings emerge.

First, during the financial crisis, the market movement component accounts for a larger portion of IEF return variations (65% of the return variations comes from the market in Panel A and 61% in Panel B). This finding can be explained by the fact that the subprime crisis caused a loss of investor confidence that led to a widespread fall in stock prices. Via the contagion effect, even non-financial firms suffered during this financial crisis. Hence, firms in which IEFs invested certainly followed market movements by also experiencing negative returns.

Second, it also seems that the portion attributed to active management matters more during the financial crisis than during the period as a whole. Indeed, average R^2 for active management was 19% during subprime crisis. IEF managers could have decided to deviate from their Islamic benchmarks in order to slow the decline in their financial performance.

Third, the active management component seems to contribute more significantly to the explanation of IEF return variations between mid-2013 and 2016. Although average R^2 for active management is 14% and 16% for the period 2010-mid-2013 and the period as a whole respectively, in the most recent subperiod it increases to 21%. This result confirms the intuition

that IEF managers may have acquired experience and developed skills in managing Islamic portfolios, which encourages them to deviate even more from their benchmarks.

4.3. Cross-section analysis

The time-series analysis in particular answers the following question: what is the relative contribution of the active management component in explaining IEF return variations over time? In order to check the robustness of our results obtained in a time series, we conduct a cross-section analysis. The cross-section analysis poses the following question: how much does the active management strategy explain the dispersion of IEF returns? To do this, we perform a monthly regression of the active management returns of all IEFs on their corresponding total returns. Hence, we run 111 cross-section regressions for the 111 months of observations as follows:

$$R_{it} = \alpha + \beta_{iS}(R_{it} - P_{it}) + \varepsilon_{it} \qquad (4)$$

We find that average R^2 from the 111 cross-section regressions is 31%. Thus, the differences in long-term active management strategy between IEFs account for a third of their monthly return dispersions. This result must be compared to the R^2 obtained from time-series analysis after neutralizing market movement effects (Xiong et al., 2010). In other words, it should be compared with results from the following time-series regression of excess market returns:

$$R_{it} - M_t = \alpha + \beta_{iS}(R_{it} - P_{it}) + \varepsilon_{it}. \qquad (5)$$

On average, the active management portion accounts for 27% of the IEFs' excess market return variations when the equally weighted average return on all IEFs is used as the market return and 31% when the average returns on conventional indices weighted by the number of

IEFs per region are used as the market return. As these results are very similar to those on the cross-section, we conclude that our time-series findings are robust.

5. Conclusion

In this study, we examined which portion of IEF performance can be explained by market movements, asset allocation policy, and active management. Several conclusions emerge. First, market movements dominate the other components in explaining nearly 50% of the monthly return variability. This domination is smaller for IEFs than for conventional and socially responsible funds. This first result shows that IEFs differ from other kinds of funds because of the severe limitations on the investment universe because of the specific constraints applied. Second, taken together, Islamic asset allocation policy and active management explain the other half of IEF returns. The proportions of the contributions of these two sources of performance vary significantly according to an IEF's geographical focus. Although the active management portion is larger for funds that invest in the most developed areas, the asset allocation policy component explains a larger share of return variations in funds that focus on emerging countries. Third, active management explains between 8% and 33% of IEF returns, depending on the geographical focus, and it appears to be an important driver of IEF performance. This result is surprising since, because of the restriction on speculative trading, such as short selling, the management of Islamic funds should be essentially passive. We can otherwise explain the disproportionate weight of active management with regard to the under-diversification risk imposed by Islamic constraints that pushes IEF fund managers to be more sensitive to portfolios' idiosyncratic risks by adopting a more reactive stock-picking approach. As many empirical studies find no significant differences in performance between Islamic indices and their conventional benchmarks (Jawadi et al., 2014; Walkshäusl and Lobe, 2012),

while, at the same time, others show that IEFs underperform their benchmarks, this underperformance could come from inefficient active portfolio management.

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Table 1: Number of IEFs by region and the Islamic benchmarks that determine their asset allocation policy

Geographic focus	# IEFs	Islamic benchmarks
World	57	MSCI World Islamic Index
US	5	MSCI USA Islamic Index
Europe	4	MSCI Europe Islamic Index
BRICS	3	MSCI BRICS Islamic Index
China	7	MSCI China Islamic Index
India	5	MSCI India Islamic Index
Russia	1	MSCI Russia Islamic Index
South Africa	5	MSCI South Africa Islamic Index
Total BRICS	21	
Asia Pacific	9	MSCI Asia Pacific Islamic Index
Asia Pacific ex Japan	9	MSCI Asia Pacific ex Japan Islamic Index
Indonesia	22	MSCI Indonesia Islamic Index
Japan	1	MSCI Japan Islamic Index
Malaysia	64	MSCI Malaysia Islamic Index
Thailand	3	MSCI Thailand Islamic Index
Total Asia	108	
Egypt	1	MSCI Jordan + Egypt + Morocco Islamic Index
GCC	20	MSCI GCC Countries Islamic Index
Kuwait	6	MSCI Kuwait Islamic Index
MENA	16	MSCI MENA Islamic Index
Morocco	1	MSCI Jordan + Egypt + Morocco Islamic Index
Pakistan	6	MSCI Pakistan Islamic Index
Qatar	2	MSCI Qatar Islamic Index
Saudi Arabia	31	S&P Saudi Arabia Shariah Index
Turkey	3	MSCI Turkey Islamic Index
Total MENA	86	
ALL	281	

Table 2: Decomposition of IEFs return variations in terms of average R^2, September 2007 to November 2016

	Average	World	US	Europe	BRICS	Asia	MENA
Panel A							
Market return = equally weighted average return of all the IEFs							
Market	49%	50%	58%	59%	47%	51%	47%
Asset allocation	28%	16%	12%	14%	30%	18%	49%
Active management	16%	21%	37%	33%	14%	8%	22%
Interaction effect	7%	13%	-7%	-6%	9%	23%	-18%
Total	100%	100%	100%	100%	100%	100%	100%
Panel B							
Market return = average return of conventional indices weighted by the number of IEFs per region							
Market	39%	51%	62%	62%	48%	40%	26%
Asset allocation	16%	16%	16%	19%	12%	6%	30%
Active management	16%	21%	37%	33%	14%	8%	22%
Interaction effect	29%	12%	-15%	-14%	26%	46%	22%
Total	100%	100%	100%	100%	100%	100%	100%

Figure 1: Decomposition of funds returns variations in terms of average R^2

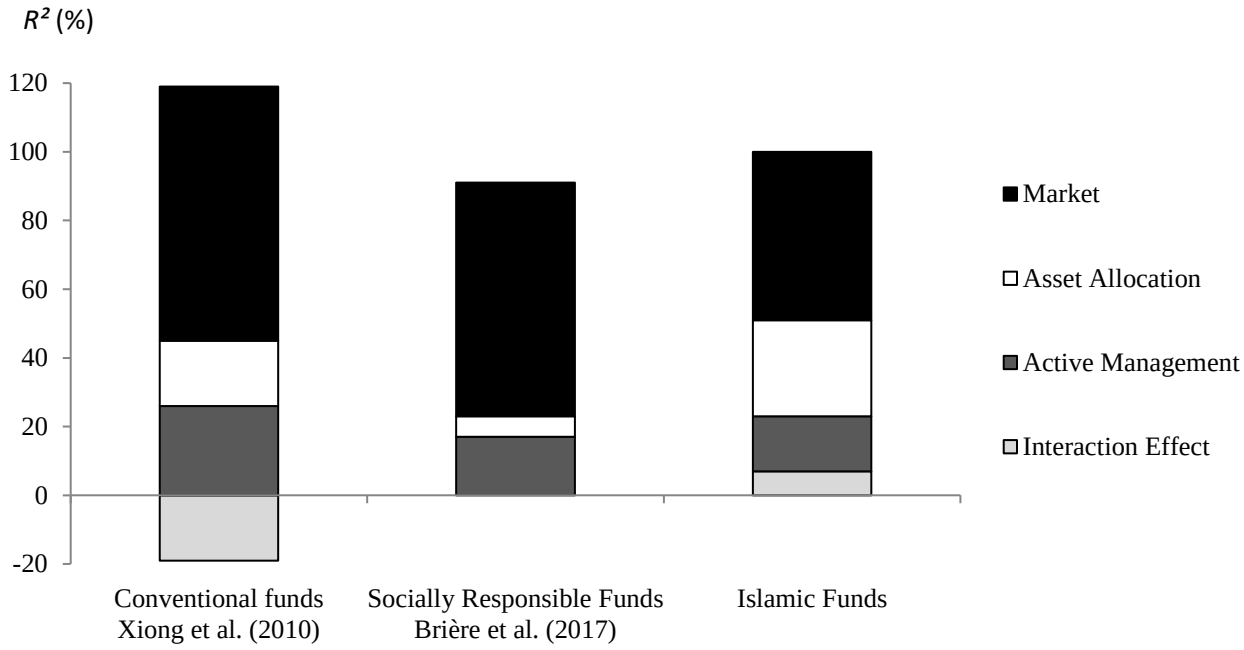

Table 3: Decomposition of IEFs return variations in terms of average R^2 over time

	2007-2009	2010-mid-2013	Mid-2013-2016	Total period
Panel A				
Market return = equally weighted average return of all the IEFs				
Market	65%	50%	37%	49%
Asset allocation	23%	25%	23%	28%
Active management	19%	14%	21%	16%
Interaction effect	-7%	11%	19%	7%
Total	100%	100%	100%	100%
Panel B				
Market return = average return of conventional indices weighted by the number of IEFs per region				
Market	61%	38%	23%	39%
Asset allocation	21%	9%	14%	16%
Active management	19%	14%	21%	16%
Interaction effect	-1%	39%	42%	29%
Total	100%	100%	100%	100%